

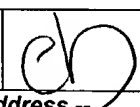


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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Four Embarcadero Center			PAPER NUMBER	
San Francisco, CA 94111-4187			1743	
DATE MAILED: 03/22/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/881,052	Applicant(s) LEBL ET AL.	
	Examiner Elizabeth Quan	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-88 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 32-88 is/are rejected.
- 7) ☒ Claim(s) 38,39,41,56 and 82 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>03052004</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06132001</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The Office regrets the inconvenience of not considering the prior art listed on the information disclosure statement by the Applicant prior to sending an Office Action. The prior art was not in the instant application but in parent application 09/738473, which was not in orderable status for a few months. Examiner has now considered the references and will submit a new Office Action.

Drawings

1. The drawings are objected to because they fail to show nozzles structurally connected to the plurality of linear actuators and rotary actuator, such that the nozzles are linearly arranged in a pattern corresponding to a radial column of the array or reaction vessels or arranged in a pattern matching the array of reaction vessels. Fig. 4 shows the nozzles that are not connected to the actuator. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of dispensing nozzles divided into first and second sets of nozzles, liquid aspiration including the rotor for carrying the vessel and orbiting the vessel about an axis of rotation, egress aperture extends radially outwardly with respect to the axis of rotation, valve, electric solenoid valve must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 38 is objected to because of the following informalities: "actuator" in the second line should be "actuators". Appropriate correction is required.
4. Claim 39 is objected to because of the following informalities: "said linear actuator" should be "said linear actuators" since it draws on the plurality of linear actuators recited in claim 38 upon which it depends. Appropriate correction is required.
5. Claim 41 is objected to because of the following informalities: "38" should be "40" to provide antecedent basis for "said rotary actuator". Appropriate correction is required.
6. Claim 56 is objected to because of the following informalities: "said" before adjustment mechanism should be "a" since the adjustment mechanism has not been recited in claims 50 or 32 upon which it depends. Appropriate correction is required.
7. Claim 82 is objected to because of the following informalities: "linear" in the third line should be "rotary". Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 40-43, 47-49, 54, 67, 68, 71-75, 82, 86, 87 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains

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subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claims 40, 41, 67, 68, 82, the limitation of a rotary actuator effecting movement of the liquid dispenser has never been disclosed in the application. Regarding claims 42, 43, 71, 72, 86, 87, the limitations of actuating the nozzles and dispensing fluid while the rotor or dispensing head is moving along the circular path were never mentioned in the specification and original claims. Drawings are not sufficient to illustrate these functional limitations. Regarding claims 47-49, 73-75, the limitations of the plurality of nozzles forming first and second sets of nozzles as well as their simultaneous or sequential actuation were never mentioned in the specification and original claims or shown in the drawings. Regarding claim 54, the limitation of the egress aperture extending radially outwardly with respect to the axis of rotation was never mentioned in the application. It is unclear how the egress aperture could ever extend radially outwardly with respect to the axis of rotation. The axis of rotation is not through each reaction vessel but the center of the rotor.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

11. Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Regarding claim 51, the language makes it unclear whether there is a separate rotor for the liquid aspirator or the liquid aspirator is part of the previously recited rotor. For examination purposes, the liquid aspirator is part of the previously recited rotor.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 32, 34-36, 38, 40, 44-46, 58, 59, 63, 65, 67, 69, 70, 77, 78, 80-83, 85 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,042,338 to Huber.

Huber discloses an apparatus for dispensing liquids into a reaction vessel (figs. 1-4). The apparatus comprise a rotor (10), motor (16), liquid dispenser (24), and controller (18) (fig. 3; col. 3, lines 36-41). The rotor is mounted for rotation about a central axis (fig. 3). The rotor carries an array of reaction vessels (12) along a circular path (col. 3, lines 36-41). The motor rotates the rotor about a central axis and moves the array of reaction vessels along a circular path (fig. 3; col. 5, line 47-col. 6, line 51). The liquid dispenser is a multi-channel dispenser with a plurality of dispensing nozzles (62) (fig. 3). The liquid dispenser is fluidly coupled with different reagent sources in different containers (40A-40C). The liquid dispenser is positioned above the rotor and arranged for movement to align the dispensing nozzles with the plurality of reaction vessels and dispensing liquid from each nozzle into a respective reaction vessel (col. 6, lines 9-51). A plurality of linear actuators are operably connected to the liquid dispenser and controlled by the

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controller (fig. 3; col. 5, line 46-col. 6, line 51). The controller is configured to actuate the linear actuators to move the plurality of dispensing nozzles from a first upper position to a second upper position (fig. 3; col. 5, line 46-col. 6, line 51). A rotary actuator (66) is operably connected to the liquid dispenser and controlled by the controller (fig. 3; col. 5, line 46-col. 6, line 51). The controller is configured actuate the rotary actuators to move the plurality of dispensing nozzles (fig. 3; col. 5, line 46-col. 6, line 51). The plurality of dispensing nozzles is linearly arranged in a pattern corresponding to a radial column of 3 reaction vessels of the array of reaction vessels (fig. 3). Specifically, the embodiment of fig. 3 discloses that the plurality of nozzles move from a first upper position to a second upper position, such that each nozzle is arranged above a reaction vessel (col. 6, lines 9-51). Each nozzle comprises a dispensing valve (56,58) for controlling liquid delivery thereto (fig. 3; col. 6, lines 9-51). The controller is configured to simultaneously synchronize movement of the rotor and the liquid dispenser and control of the dispensing valves since it discloses that a controller synchronizes the various operations (col. 3, lines 36-41; col. 5, line 47-col. 6, line 51). The apparatus is configured for chemical and oligomer synthesis (abstract).

15. Claims 77, 83-85, 88 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,844,868 to Rokugawa.

Rokugawa discloses an apparatus for performing combinatorial-chemistry synthetic reactions (figs. 1-6). The apparatus comprises a rotor (36), centrifugal motor (38), liquid dispenser (40) with a plurality of nozzles (32), and controller (figs. 1-6). The rotor includes an array (6) of reaction vessels (4) each of which is configured for containing a combinatorial-chemistry synthetic reaction (figs 1-6). The centrifugal motor rotates the rotor about a central

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axis and moves the array of reaction vessels along a circular path (figs. 1-6). The liquid dispenser is positioned above the rotor and arranged for movement to align the dispensing nozzles with a plurality of reaction vessels for dispensing liquid from each dispensing nozzle into the respective reaction vessel (figs. 1-6). The controller controls the liquid dispenser and array of reaction vessels such that the plurality of dispensing nozzles dispenses liquid into the reaction vessels (col. 5, lines 35-61). The reaction vessel array comprises reaction tube cassettes, which may be considered a microtiter plate since microtiter plates come in different shapes and sizes.

16. Claims 32-36, 40-43, 45, 58-60, 67, 68, 71, 72, 77, 78, 82, 83, 85-87 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 1,241,539 to American Hospital Supply Corporation.

American Hospital Supply Corporation discloses an apparatus (10) for dispensing liquids into a reaction vessel (26) (figs. 1-9). The apparatus comprises of a rotor (13,19), liquid dispenser (12,31,39), and controller (36) (figs. 1-9). The rotor is mounted for rotation about a central axis (figs. 1-9; page 3, line 123-page 4, line 2). The rotor carries an array of reaction vessels (26) along a circular path (figs. 1-9; page 3, line 123-page 4, line 2). The liquid dispenser includes a plurality of dispensing nozzles (48) each with its own channels, such that the liquid dispenser may be considered a multi-channel dispenser (figs. 1-9). The liquid dispenser is positioned above the rotor and simultaneously moves with the rotor along the same circular path to align the dispensing nozzles with a plurality of reaction vessels and dispense liquid from each dispensing nozzle into a respective reaction vessel (figs. 1-9; page 3, line 123-page 4, line 2). The distributor (39) of the liquid dispenser is fixed to the intermediate portion of shaft (30) directly beneath arm (31), which is pivotally carried by upstanding shaft (32) (figs. 1-9; page 2,

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line 119-page 3, line 32). The apparatus is in operative position when the hood (12) is pivoted about the shaft (32) into a laterally-displaced position with the shaft (30) aligned with rotor (13,19), such that the liquid dispenser and rotor carrying an array of reaction vessels along a circular path are interlocked for simultaneous rotation by shaft (30) (page 2, line 119-page 3, line 24; page 3, lines 124-129). The rotor and shaft (30) comprise a centrifugal motor (24) for rotating the rotor about the central axis and moving the array of reaction vessels along the circular path (figs. 1-9). The liquid dispenser is fluidly coupled with one or more reagent sources (13) (figs. 1-9). The controller synchronizes the liquid dispenser and the rotor such that two or more of the plurality of dispensing nozzles each dispense liquid into two or more respective reaction vessels simultaneously (figs. 1-9; page 2, line 119-page 3, line 24). The controller is configured to actuate the nozzles and dispense fluid while the rotor and dispenser head is moving along the circular path (figs. 1-9; page 3, lines 9-25; page 3, line 123-page 4, line 95).

Although the apparatus is not specifically disclosed for chemical or oligomer synthesis, this is considered by the Examiner a recitation of intended use of the claimed invention. Additionally, each vessel configured for containing a combinatorial-chemistry synthetic reaction is also considered a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

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17. Claims 32-35, 40-45, 57-60, 67-69, 76-78, 80, 82, 83-88 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,423,536 to Jovanovich et al.

Jovanovich et al. disclose an apparatus for dispensing liquids into a reaction vessel (36a) (figs. 3A-3D, 4A, 4B, 5A, 5B). The apparatus comprises a rotor (41), liquid dispenser (15), and controller (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The rotor is mounted for rotation about a central axis (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The rotor carries an array of reaction vessels along a circular path (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The reaction vessel array comprises a microtiter plate with an array of wells (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The liquid dispenser includes a plurality of dispensing nozzles (12) (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The liquid dispenser is positioned above the rotor and arranged for movement along the same circular path to align the dispensing nozzles with a plurality of reaction vessels and dispensing liquid from each dispensing nozzle into a respective reaction vessel (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The liquid dispenser is operably connected to the same rotary actuator as that of the rotor such that the dispensing nozzles move along the portion of the circular path along with the reactions vessels. The controller is configured to actuate the nozzles and dispense fluid while the rotor and dispenser is moving along the same circular path (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The liquid dispenser is fluidly coupled with one or more reagent sources in order to load the nozzles with fluid to be transferred to the microtiter plates of the

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swinging microplate bucket of the centrifuge (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The controller synchronizes the liquid dispenser and rotor such that two or more of the plurality of dispensing nozzles each dispense liquid into two or more respective reaction vessels simultaneously (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). The nozzles are linearly arranged in a pattern corresponding to a radial column of the array of reaction vessels (figs. 3A-3D, 4A, 4B, 5A, 5B; col. 10, line 51-col. 11, line 41; col. 26, line 29-col. 27, line 13). Since each nozzle has a channel, the liquid dispenser is considered a multi-channel dispenser.

Although the apparatus is not specifically disclosed for chemical or oligomer synthesis, this is considered by the Examiner a recitation of intended use of the claimed invention. Additionally, each vessel configured for containing a combinatorial-chemistry synthetic reaction is also considered a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 32, 34, 35, 44, 45, 57-59, 69, 76-78, 80, 83-85, 88 rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, 35 U.S.C. 103(a) as obvious over WO 99/25470 to Lebl.

Lebl discloses an apparatus for dispensing liquids into a reaction vessel (2) (figs. 1-10). The apparatus comprises a rotor, liquid dispenser, and controller (figs. 1-10; page 5, lines 8-18; page 8, lines 30-35; page 10, lines 19-21; page 17, line 22-page 19, line 9). The rotor is mounted for rotation about a central axis and carries an array of reaction vessels in the form of microtiter plates along a circular path (figs. 1-10; page 5, lines 8-18; page 8, lines 30-35; page 10, lines 19-

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21; page 17, line 22-page 19, line 9). The liquid dispenser includes a plurality of dispensing nozzles each of which has a channel, such that the liquid dispenser is consider a multi-channel liquid dispenser. The liquid dispenser is positioned above the rotor and arranged for movement to align the dispensing nozzles with a plurality of the reaction vessels and dispensing liquid from each dispensing nozzle into a respective reaction vessel (figs. 1-10; page 5, lines 8-18; page 8, lines 30-35; page 10, lines 19-21; page 17, line 22-page 19, line 9). Since the specification discloses that the liquid dispenser removes liquids and the drawings show that the nozzles is at a level above the microtiter plate, such that it needs to be lowered to contact and remove liquids from the wells, one would expect that the liquid dispenser is at least arranged for vertical movement. Furthermore, when the nozzles are lowered to contact the liquid in order to remove or dispense the liquid, it will need to be raised so that the rotation of the centrifuge does not break off the tips unless the liquid dispenser is moving along with the rotor. The liquid dispenser is fluidly coupled with one or more reagent sources (figs. 1-10; page 5, lines 8-18; page 8, lines 30-35; page 10, lines 19-21; page 17, line 22-page 19, line 9). The controller synchronizes the liquid dispenser and rotor such that two or more of the dispensing nozzles each dispense liquid into two or more reaction vessels (figs. 1-10; page 5, lines 8-18; page 8, lines 30-35; page 10, lines 19-21; page 17, line 22-page 19, line 9). Since the dispenser with 96 nozzles is positioned with the 96 wells of the microtiter plate, one would expect liquids are simultaneously dispensed into the 96 wells simultaneously. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lebl to simultaneously dispense liquids for high-throughput.

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Although the apparatus is not specifically disclosed for chemical or oligomer synthesis, this is considered by the Examiner a recitation of intended use of the claimed invention. Additionally, each vessel configured for containing a combinatorial-chemistry synthetic reaction is also considered a recitation of intended use of the claimed invention. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPQ 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

22. Claims 38, 39, 65, 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/25470 to Lebl or U.S. Patent No. 6,423,536 to Jovanovich et al. in view of JP 59-119268 to Sasao or Lebl's "A New Approach to Automated Solid Phase Synthesis Based on Centrifugation of Tilted Plates" as evidenced by "Spyder Technology: A New Approach to Automated Solid Phase Synthesis Based on Centrifugation of Tilted Plates".

Lebl fails to disclose a plurality of linear actuators operably connected to the liquid dispenser. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lebl or Jovanovich et al. to provide a plurality of linear actuators to effect horizontal and vertical movement of the dispenser in order to precisely and accurately address reaction vessels as taught by Sasao or Lebl's "A New Approach to Automated Solid Phase Synthesis Based on Centrifugation of Tilted Plates" as evidenced by "Spyder Technology: A New Approach to Automated Solid Phase Synthesis

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Based on Centrifugation of Tilted Plates". Lebl's "A New Approach to Automated Solid Phase Synthesis Based on Centrifugation of Tilted Plates" teach the use of a Packard Multiprobe 104, and "Spyder Technology: A New Approach to Automated Solid Phase Synthesis Based on Centrifugation of Tilted Plates" refer to the features of the Packard Multiprobe 104, which appears to be capable of horizontal and vertical motion that would require linear horizontal and vertical actuators.

23. Claims 37, 38, 40, 61, 62, 64, 65, 67, 79, 81, 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,042,338 to Huber.

Although Huber does not explicitly disclose that the dispensing valves are electric solenoid valves, there is a good chance that they are electric solenoid valves since the system is electrically controlled. Regardless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use electric solenoid valves since they are very well known in precision dispensing.

Although Huber does not explicitly disclose the step of performing chemical synthesis in at least one of the reaction vessel, particularly synthesis of oligomers, there is a good chance that byproducts may be formed in performing flameless atomic absorption spectroscopy such that it may be considered a synthesis. Regardless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the apparatus of Huber to perform chemical synthesis, particularly synthesis of oligomers as necessary or desired since it is very well known to efficiently perform synthesis in such automatic devices.

Although Huber does not explicitly disclose linear and rotary actuators in those exact terms, it is highly likely that linear and rotary actuators are behind the vertical and rotating

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movement of the liquid dispenser. Regardless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Huber to provide linear and rotary actuators since they are very well known to provide movement to the liquid dispenser.

24. Claims 42, 71, 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,042,338 to Huber in view of U.S. Patent No. 4,808,380 to Minekane.

Huber fails to disclose that the controller is configured to actuate the nozzles and dispense fluid while the rotor is moving along the circular path. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Huber to provide a continuously moving rotor such that actuating the nozzles and dispensing fluid occurs while the rotor is moving along the circular path to encourage efficient dispensing as taught by Minekane.

25. Claims 50, 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,042,338 to Huber or U.S. Patent No. 6,423,536 to Jovanovich et al. in view of U.S. Patent No. 4,837,159 to Yamada.

Huber or Jovanovich et al. fail to disclose each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Huber or Jovanovich et al. to provide each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture to better facilitating draining and cleaning the reaction vessels as taught by Yamada (figs. 4A-4D and 7A-C).

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26. Claims 50-53, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/25470 to Lebl in view of U.S. Patent No. 4,837,159 to Yamada.

Lebl discloses that the reaction vessel array is a microtiter plate and an adjustment mechanism for adjusting the angle of the vessel relative to the horizontal plane in response to the centrifugal force generated by orbiting the vessel about the axis of rotation (page 17, line 30- page 19, line 9). Lebl fails to disclose each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lebl to provide each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture to better facilitating draining and cleaning the reaction vessels as taught by Yamada (figs. 4A-4D and 7A-C).

27. Claims 46-51, 53, 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/25470 to Lebl or U.S. Patent No. 6,423,536 to Jovanovich et al. in view of U.S. Patent No. 5,472,672 to Brennan.

Lebl and Jovanovich et al. each fail to disclose a plurality of dispensing nozzles forming a first set of dispensing nozzles for dispensing a first liquid and second set of dispensing nozzles for dispensing a second liquid. However, it would have been obvious to modify the apparatus of Lebl or Jovanovich et al. to provide first and second sets of nozzles for dispensing first and second liquids, respectively, to efficiently supply the different reagents, solutions, or solvents to complete a process as taught by Brennan. Brennan teaches sequentially actuating the first and second sets of nozzles since a certain bank or row of wells may require the first liquid but not the second liquid (fig. 3). Brennan teaches simultaneously actuating the first and second sets of

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nozzles to flush air and water traces from the head space of the chamber with inert gas (fig. 5; col. 9, lines 34-55).

Lebl and Jovanovich et al. each fail to disclose the reaction vessel with an egress aperture and a liquid aspirator for aspirating liquid from the vessel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lebl to provide each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture to better facilitating draining and cleaning the reaction vessels as taught by Brennan.

Double Patenting

28. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

29. Claims 32-88 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,663,832. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims include all the limitations of the instant claims. The only difference between the instant and patented claims is that the instant claims are broader.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (571) 272-1261. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth Quan
Examiner
Art Unit 1743

eq


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